

Dear Colleagues and friends,

On behalf of the Local Organization committee of the 12th Phil Math Workshop, I have the pleasure to welcome you on-line.

Alas, I would have preferred to say: welcome in Nancy! The virus decided otherwise. After 2009, 2011 and 2017, we were looking forward to organizing our workshop for the fourth time in Nancy, but today I am already happy that our 12th meeting can take place at all, thanks to the technical competence of my colleagues Valeria Giardino and Baptiste Mèlès to whom we are very grateful. Finally, we are much more participants than at a meeting in face. I am very happy to see so many colleagues and friends around the world.

I am particularly glad that the French-Phil Math workshops are the outcome of a combined effort of the French community of philosophers of mathematics, completed by some foreign friends, which have joined together institutionally in a structure called “GDR Philosophy of Mathematics”, financially supported by the CNRS and directed by Brice Halimi, University of Paris. Each year, the GDR also organizes a summer school " Contemporary Philosophy and Mathematics ", the 8th edition of this year unfortunately had to be canceled because of the covid. The aim of these schools is to develop discussion and collaboration between mathematicians and philosophers of mathematics by confronting the problems emerging from the mathematical practices at work in contemporary research. Given the different conceptions of the philosophical background between us, our cooperation is by no means evident or even easy but it works in a most friendly and democratic atmosphere. This was especially the case of the scientific committee of the present workshop, which was directed by Paola Cantu, Aix-en Provence. Our workshops were initiated in 2009 by Mic Detlefsen, who held the Chair d'excellence Nancy-Paris organized by Marco Panza, Jean-Jacques Szczeciniarz and myself from 2007-2011. The Midwest PhilMath *Workshop* is of course the model of

our meetings, but our places change with the organizer: Paris, Clermont, Toulouse, Aix-Marseille were former locations. Detlefsen's legacy is not only the workshop but also the Paris — Notre-Dame Seminar “Intersem”, which receives financial support for 4 years by the CNRS and the University of Notre-Dame, under the direction of David Rabouin within the institutional framework of an International Research Network (IRN).

This year we have 5 invited lectures and 5 contributed papers in our workshop. Among the invited speakers one comes from the GDR, this year Sébastien Gandon, another is a mathematician able to give a philosophical talk addressing an audience of philosophers: this year Bertrand Remy. All invited speakers are selected by our scientific committee, and all contributed speakers evaluated by this same instance. This year's theme, which is not obligatory but is especially welcome, is “Formalism, Formalization, Intuition and Understanding in Mathematics” and Mjria Hartimo, Thomas Hausberger and Ken Manders are the invited specialists to this topic. It is in fact the topic of a Franco-German research project, directed by Marco Panza, Hannes Leitgeb and myself, between the Universities of Paris I, Lorraine-Nancy and the Maximilian University of Munich, whereby Marianna Antonutti Marfori is particularly involved in the German side of the project. Our project is divided into two tasks:

I. Investigating the Interplay Between Formalization and Understanding in Mathematics: The forms of Understanding

- Rethinking Structuralism and Investigating the Relationship Between Structures and Intuition
- Investigating the Impact of Formalization on Mathematical Practice
- Reverse Mathematics

II Formal and Informal rigor

- Formal rigor in Logical and Mathematical Reasoning

- Informal Rigor

For the days to come I wish us a fruitful exchange of ideas and plenty of incentives for future research.

I am delighted to give now the floor to my successor in Nancy, Andrew Arana.